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THE HERPETOLOGY OF SINAI

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The Sinai Peninsula, even aside from the water-barrier of the Suez Canal, is geographically a part of the Asiatic continent, though politically a province of Egypt. Any broad consideration of the fauna of either southwest Asia or northeast Africa requires consideration of the Sinaitic connecting link. The intermediate position of the Sinaitic fauna lends it therefore a special zoogeographic interest, but in spite of the long history of our knowledge of Sinai, the herpetological fauna is not yet adequately known, and the extensions into it of forms known mainly from Palestine and of others known from Egypt are not delimited, let alone ecologically or historically explained.

A small collection of reptiles from Sinai, presented to Chicago Natural History Museum by Field Associate Harry Hoogstraal (Head of the Department of Medical Zoology, United States Medical Research Unit No. 3, in Cairo), has resulted from his several brief expeditions into the peninsula during the years from 1950 to 1954. The chief purpose for these collections has been to establish a zoogeographical background for studies of the epidemiology of disease.

Mr. Hoogstraal's collection of 97 lizards represents 10 species, and his 14 snakes include eight species. This collection effectively supplements one of 88 specimens received through the active and long-continued interest of Dr. Henry Field, whose small Sinai collection is a welcome by-product of his association with the University of California African Expedition of 1947. The Field collection includes one species of toad, one turtle, eight species of lizards and one snake. His Sinai route is documented by the account of Albright (1948) and Field (1952). How effectively the

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two collections supplement each other is shown by the fact that only two of the species of lizards are found in both collections. Three specimens from Sinai received from the British Museum more than fifty years ago add a species of lizard to the material available from Sinai. Perhaps the most remarkable addition to the fauna in these collections is the mole viper, *Atractaspis engaddensis*, described from Palestine as lately as 1950 and wholly unknown in Egypt.

Thanks to the kindness of Dr. Doris M. Cochran, of the United States National Museum, we are enabled to add to our report a small Sinai collection made by Lieutenant Commander Robert E. Kuntz and Chief Hospitalman W. H. Wells (Department of Parasitology, United States Naval Medical Research Unit no. 3) at Wadi Feiran. It includes the fourth and fifth known specimens of *Atractaspis engaddensis* Haas, the type specimen of the new species of *Lytorhynchus*, and two specimens of the rare *Uromastix ornatus*.

The effective zoological exploration of the Sinai Peninsula began with the several expeditions of Edward Rüppell, the first in 1817, the last in 1830. His collections (listed under the general regional term "Arabia Petraea" by Boettger) seem to have included very few specimens of reptiles. Heyden's report on the Rüppell African collections includes the description of *Agama sinaita*.

Since Rüppell's time large additions to the Sinai herpetological fauna have been made. In 1933 Major S. S. Flower, in his paper on the recent amphibians and reptiles of Egypt, recorded 43 species from Sinai, as compared to a total of 71 from Egypt proper. The species in his list known from Sinai and not extending into Egypt are:

Gymnodactylus scaber Heyden
Tropicololes nattereri Steindachner
Uromastix acanthinurus Bell
Ablepharus kitaibeli Bibron and Bory
Ophisops elegans Ménétriés

Eirenis fasciatus Jan
Eirenis coronella Schlegel
Telescopus dhara Forskål
Pseudocerastes fieldi Schmidt

We append a new list of the species known from Sinai and an artificial key to the genera. This will identify most of the species as well as the genera and we hope that it may be useful to travelers in this interesting part of the world.

Specimens are here recorded from the following localities:

Wadi el 'Arish
 Near Abu 'Aweiqileh
 Rawafi

Wadi Lethleli, 10 miles northwest of Bir Hasaneh

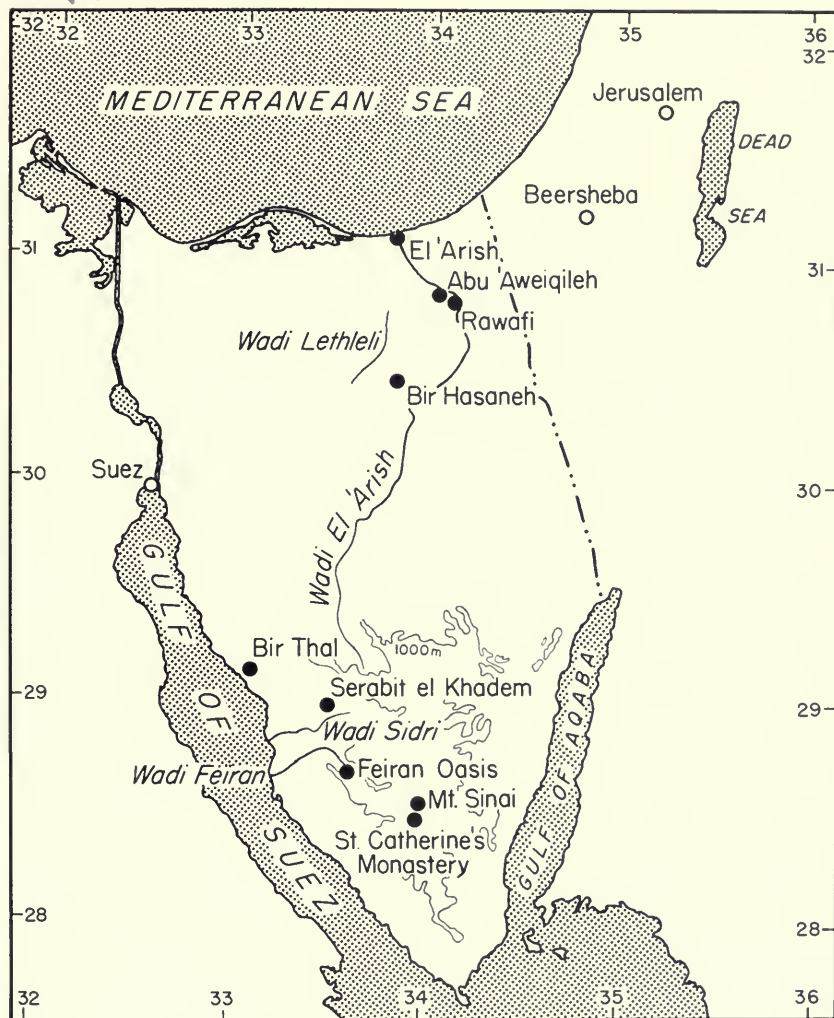


FIG. 3. Map of Sinai Peninsula, showing localities mentioned in text.

Bir Thal

Wadi Sidri

Serabit el Khadem

Feiran Oasis, Wadi Feiran

Mount Sinai

St. Catherine's Monastery, 5,000 feet

Wadi el Arbaen, St. Catherine's Monastery area

Wadi el Sheikh, St. Catherine's Monastery area

El Raba, St. Catherine's Monastery area

Annotated List

AMPHIBIA

SALIENTIA

Bufonidae

Bufo viridis viridis Laurenti. Green toad.

Bufo viridis Laurenti, 1768, Syn. Rept., p. 27, pl. 1, fig. 1—Vienna.

Bufo viridis viridis Mertens, 1926, Senckenbergiana, 8: 258.

El 'Arish, 58724–25, 58892–93 (Field).

Ruafah, near Abu 'Aweiqileh, 58726–886, 58894 (Field).

These specimens are not distinguishable from those of Iraq.

Rana mascareniensis mascareniensis Duméril and Bibron

Rana mascareniensis Duméril and Bibron, 1841, Erp. Gén., 8: 350—Mada-gascar, Mauritius, and Seychelles.

Rana mascareniensis mascareniensis Loveridge, 1930, Bull. Mus. Comp. Zool., 72: 385.

Wadi Feiran, USNM 131381 (Kuntz and Wells).

REPTILIA

CHELONIA

Testudinidae

Testudo leithi Günther

Testudo leithii Günther, 1869, Proc. Zool. Soc. London, 1869: 502–503, text figs. 1–4—Sind (in error).

El 'Arish, 58720 (Field).

The specimen at hand measures 81 mm. in length of shell. The species *leithi* has a remarkably limited distribution, from Sinai to Cyrenaica; it does not appear to range south of the coastal strip.

SAURIA

Gekkonidae

Stenodactylus sthenodactylus sthenodactylus Lichtenstein

Ascalabotes sthenodactylus Lichtenstein, 1823, Verz. Doubl. Mus. Berlin, p. 102—Egypt and Nubia.

Stenodactylus sthenodactylus Flower, 1933, Proc. Zool. Soc. London, 1933: 760.

Feiran Oasis, 58550 (Field).

The single specimen has a well-marked dorsal pattern, a brown reticulation with round light spots.

Ptyodactylus hasselquisti hasselquisti Donndorff

Lacerta hasselquisti Donndorff, 1789, Zool. Beitr., Leipzig, 3: 133—Egypt.

Ptyodactylus hasselquisti hasselquisti Schmidt, 1939, Field Mus. Nat. Hist., Zool. Ser., 24: 56.

Feiran Oasis, 63024, 95952 (Hoogstraal).

St. Catherine's Monastery, 95916–19 (Hoogstraal).

Wadi el Arbaen, 95920 (Hoogstraal).

El Raba, 95921 (Hoogstraal).

Wadi Feiran, USNM 131386–93, 131441 (Kuntz and Wells).

Collected in rocky hillside terrain.

Agamidae

Agama mutabilis Merrem

Agama mutabilis Merrem, 1820, Tent. Syst. Amphib., p. 50—Egypt.

Feiran Oasis, 58689 (Field).

Agama pallida Reuss

Agama pallida Reuss, 1834, Mus. Senck., 1: 38, pl. 3, fig. 3—Sinai (by designation of Anderson, 1896).

Rawafi, near Abu 'Aweiqileh, 58690 (Field).

Wadi Feiran, USNM 131398 (Kuntz and Wells).

Agama sinaita Heyden

Agama sinaita Heyden, 1827, in Rüppell, Atlas Reise nörd. Afr., Rept., p. 10, pl. 3—Sinai.

Sinai Peninsula, 3907 (British Museum).

Wadi el Sheikh, 95913–14 (Hoogstraal).

Wadi Feiran, USNM 131397 (Kuntz and Wells).

St. Catherine's Monastery, USNM 134982 (Kuntz and Wells).

South Sinai, USNM 124694 (Kuntz and Wells).

Agama stellio brachydactyla Haas

Agama stellio brachydactyla Haas, 1951, Ann. Mag. Nat. Hist., (12), 4: 1052—Jebel Lussan, near Israel-Sinai border, S. S. W. of Beersheba.

Feiran Oasis, 63025–36, 95882–85, 95890–93 (Hoogstraal).

Wadi Feiran, USNM 131382 (Kuntz and Wells).

St. Catherine's Monastery, 95879-81, 95886-89 (Hoogstraal); USNM 133600 (Kuntz and Wells).

South Sinai, USNM 124702 (Kuntz and Wells).

The subspecies *brachydactyla* seems to be uniformly distributed in the Sinai Peninsula, the series from St. Catherine's Monastery being indistinguishable from the population at the Feiran Oasis. The shortness of fingers and toes, to which Haas calls attention in the original description, is much less marked than his single count would indicate. In 33 specimens the subdigital scales beneath the third finger range from 13 to 18, averaging 15 (Haas' individual, 13); the scales beneath the fourth toe range from 17 to 22, average 19 (Haas, 17). Our large series from Feiran Oasis agrees with the description of *brachydactyla* in pale coloration, and thus indicates that the dark specimens from this locality mentioned by Flower (1933) and queried by Haas must have been unusual in coloration.

Most of our Palestinian and Jordanian specimens agree best with *brachydactyla* in the subdigital character. The longer toes of *stellio stellio* appear in our Hatay series. Flower's indication that the north Egyptian *stellio* might be distinct is well borne out in the series available here. It is characterized by its gray ground color (in our preserved specimens) and by having small mid-dorsal scales posteriorly. The name *Agama stellio vulgaris* Sonnini and Latreille appears to be available for this form.

Uromastix aegyptius Forskål

Lacerta aegyptia Forskål, 1775, Descr. Anim., p. 13—Egypt.

Uromastix aegyptius Anderson, 1898, Zool. Egypt, Amph. Rept., p. 129, pl. 14.

Feiran Oasis, 10 miles west, 95873 (Hoogstraal).

Uromastix ornatus Heyden

Uromastix ornatus Heyden, 1827, in Rüppell, Atlas Reise nörd. Afr., Rept., p. 1, pl. 1—Mohila or Moila, Arabia.

Wadi Feiran, USNM 131419 (Kuntz and Wells).

Mount Sinai, USNM 56994.

Lacertidae

Acanthodactylus boskianus asper Audouin

Lacerta aspera Audouin, 1829, Descr. Egypte, Rept., Suppl., p. 173, pl. 1, fig. 9—Egypt.

Acanthodactylus boskianus var. *asper* Lataste, 1885, Ann. Mus. Genova, (2), 2: 496.

Feiran Oasis, 63074-92, 95932-42 (Hoogstraal).

Wadi Feiran, USNM 131385, 131420-33, 131435 (Kuntz and Wells).

Serabit el Khadem, 58695-96 (Field).

Wadi el Sheikh, 95930-31 (Hoogstraal).

Wadi el Arbaen, 95927-29 (Hoogstraal).

St. Catherine's Monastery, 95943-45 (Hoogstraal); USNM 133601-08, 133635 (Kuntz and Wells).

Sinai, USNM 131383 (Kuntz and Wells).

These specimens are all clearly *asper*, with the larger dorsals and undivided anterior supraocular of this form.

***Acanthodactylus scutellatus scutellatus* Audouin**

Lacerta scutellata Audouin, 1829, Descr. Egypte, Rept., Suppl., p. 172, pl. 1, fig. 7—Egypt.

Acanthodactylus scutellatus scutellatus Loveridge, 1936, Field Mus. Nat. Hist., Zool. Ser., 22: 61.

Bir Thal, 95946 (Hoogstraal).

This species is known from Wadi Hebron in the Sinai Peninsula.

***Eremias guttulata guttulata* Lichtenstein**

Lacerta guttulata Lichtenstein, 1823, Verz. Doubl. Mus. Berlin, p. 101—Egypt.

Eremias guttulata guttulata Wettstein, 1928, Sitzber. Akad. Wiss. Wien, (math.-natur.), 137, Abt. 1, p. 782.

Serabit el Khadem, 58701 (Field).

Feiran Oasis, 95951 (Hoogstraal).

Feiran Oasis, Wadi Feiran, 58702 (Field); USNM 131384 (Kuntz and Wells).

St. Catherine's Monastery, 5,000 feet alt., 58703-08 (Field), 95947-50 (Hoogstraal); USNM 133609-34, 133636-42 (Kuntz and Wells).

Wadi Sidri, 58709 (Field).

Wadi el Sheikh, 95922-25 (Hoogstraal).

Wadi el Arbaen, 95926 (Hoogstraal).

We find no specimens of *olivieri olivieri* Audouin or of *olivieri schmidt* Haas among the *Eremias* in our Sinai collections. The reference of these specimens to *Eremias rubropunctata* (Schmidt, 1952) was in error.

Scincidae

Chalcides ocellatus ocellatus Forskål

Lacerta ocellata Forskål, 1775, Descr. Anim., p. 13—Egypt.

Chalcides ocellatus ocellatus Wettstein, 1928, Sitzber. Akad. Wiss. Wien, (math.-natur.), 137, Abt. 1, p. 784.

Feiran Oasis, 58572-73 (Field); 72176 (pool in oasis, Hoogstraal); 72265 (one mile east of oasis, Hoogstraal).

Wadi el Sheikh, 72263-64 (in sandy valley, Hoogstraal).

Wadi Feiran, USNM 131436-37 (Kuntz and Wells).

Chalcides sepsoides Audouin

Scincus sepsoides Audouin, 1829, Descr. Egypte, Rept., Suppl., p. 180, pl. 2, figs. 9-10—Egypt.

Chalcides sepsoides Flower, 1933, Proc. Zool. Soc. London, 1933: 790.

Bir Thal, 69285 (on sand dune, Hoogstraal).

Eumeces schneideri schneideri Daudin

Scincus schneideri Daudin, 1802, Hist. Nat. Rept., 4: 291—West Asia.

Eumeces schneideri schneideri Mertens, 1924, Senckenbergiana, 6: 182.

El Raba, 72150, 72153-55 (Hoogstraal).

Wadi el Sheikh, 72151-52 (Hoogstraal).

St. Catherine's Monastery, USNM 133643 (Kuntz and Wells).

The Sinai series makes possible some preliminary judgment as to the relation between the elongate and striped Palestinian *pavimentatus* and the crossbarred and more stocky *schneideri*. In 54 Egyptian specimens available for examination (thanks to the large collections received from Harry Hoogstraal and his associates), 52 specimens have the golden spots in crossbars or transverse rows and only two have them in longitudinal rows. This agrees with the figure and description given by Anderson (1898). We have only four specimens of *pavimentatus*, but these agree with the original description and with subsequently described specimens in coloration and in having 24 scales around the body.

Only one of the Sinai series has the coloration of *pavimentatus*, the remaining six being crossbarred like Egyptian specimens. But the scale rows around the body are 24 in five, 25 in one, and 26 in one, which proportion agrees with the Palestinian form. We believe the Sinai population to be intermediate between *schneideri* and *pavimentatus*, the several distinguishing characters varying in-

dependently. The single Hatay specimen collected by Harry Hoogstraal in a weedy coastal plain four miles south of Iskenderun, Turkey, agrees with our specimens of *pavimentatus* in coloration and scale rows.

Scincus scincus scincus Linnaeus

Lacerta stincus Linnaeus, 1758, Syst. Nat., p. 205—Lybia, Egypt, and Arabia Petreae.

Scincus scincus scincus Loveridge, 1936, Field Mus. Nat. Hist., Zool. Ser., 22: 72.

El 'Arish, 58553-56 (Field).

This species does not appear to have been recorded from Sinai before, but Flower (1933, p. 788) obtained it at Ismaila at the Mediterranean end of the Suez Canal. The extension of its range along the sandy northern coast of Sinai was to be expected; Haas (1951b, p. 75) records it from Palestine. The repetitions of the disagreeably erroneous spelling for the skink of classical literature in the early descriptions of this species do not merit perpetuation.

SERPENTES

Colubridae

Coluber rogersi Anderson

Zamenis rogersi Anderson, 1893, Ann. Mag. Nat. Hist., (6), 12: 439—Lower Egypt.

Coluber rogersi Flower, 1933, Proc. Zool. Soc. London, 1933: 810.

Wadi Lethleli, 58488 (Field).

The specimen is a male, with dorsal scale rows 19, ventrals damaged, caudals 104; total length 512 mm., tail length 148 mm.

Coluber rhodorhachis Jan

Zamenis rhodorhachis Jan, 1865, in De Filippi, Viagg. Pers., p. 356—Iran.

Coluber rhodorhachis Parker, 1931, Ann. Mag. Nat. Hist., (10), 8: 516.

Wadi el Sheikh, 72108-10 (Hoogstraal).

Two male specimens have dorsal scale rows of 19; ventrals 249, 258; caudals 144, 148; total length 1269 mm., 1175 mm.; tail length 368 mm., 336 mm. The female specimen has dorsal scale rows 19; ventrals 260; caudals 147; total length 1,077 mm., tail length 307 mm.

One of the male specimens had a *Eumeces schneideri* in its stomach.

Eirenis coronella Schlegel

Calamaria coronella Schlegel, 1837, Physion. Serp., 2: 48—Moorea and Syria (restr. to Syria, Schmidt, 1939).

Eirenis coronella Schmidt, 1939, Field Mus. Nat. Hist., Zool. Ser., 24: 78.

St. Catherine's Monastery area, 72113 (Hoogstraal).

El Raba, 72114 (Hoogstraal).

The two specimens, both males, differ considerably, and do not fall into the known range of variation of *Eirenis coronella* in having a higher number of caudals, 59 and 62, as compared with 43–56 in specimens from Israel and Jordan.

The scale counts of the two snakes are as follows: dorsal scales 15; ventrals 145, 141; caudals 62, 59; loreal 1–0, 1–1; total length 281, 326 mm.; tail length 72, 85 mm. The specimens differ in having the loreal region vertical in one, sloping outward in the other. No. 72113 has the 44 transverse bands composed of black margins on the scales, whereas in 72114 there are 32 uniform brown crossbands.

Mr. Hoogstraal's field notes state that the specimens were collected among rocks on the hillsides, at about 5,000 feet. The senior author called attention to the need for a comprehensive revision of the genus *Eirenis* in 1939. It is gratifying to report that such a review has now been undertaken by Dr. Georg Haas of the Hebrew University.

Lytorhynchus diadema Duméril and Bibron

Heterodon diadema Duméril and Bibron, 1854, Erp. Gén., 7: 779—Algeria.

Lytorhynchus diadema Peters, 1862, Monatsber. Akad. Wiss. Berlin, 1862: 272, pl., fig. 1.

El Raba, 72111 (Hoogstraal).

The single specimen is a male, with dorsal scale rows 19, ventrals 161, caudals 35, upper labials 8–7, preoculars 3, postoculars 2, and anal divided. The total length is 279 mm., tail 40 mm.

Lytorhynchus sinai, new species. Figure 4.

Type.—United States National Museum no. 134989. A female from Wadi Feiran, Sinai Peninsula. Collected by Robert E. Kuntz.

Diagnosis.—A *Lytorhynchus* with the edges of the rostral only slightly raised; nasal divided; a pattern of sharply defined black dorsal crossbars on a white ground color; dorsals 17; ventrals 184 to 194; caudals 94.

Description of type.—Head pointed, slightly distinct from the slender body, tail a little more than one-fourth the total length; eye relatively large, its diameter nearly twice its distance from the labial border.

Rostral with a triangular posterior projection between the internasals, its borders only slightly raised; internasals two-thirds as long

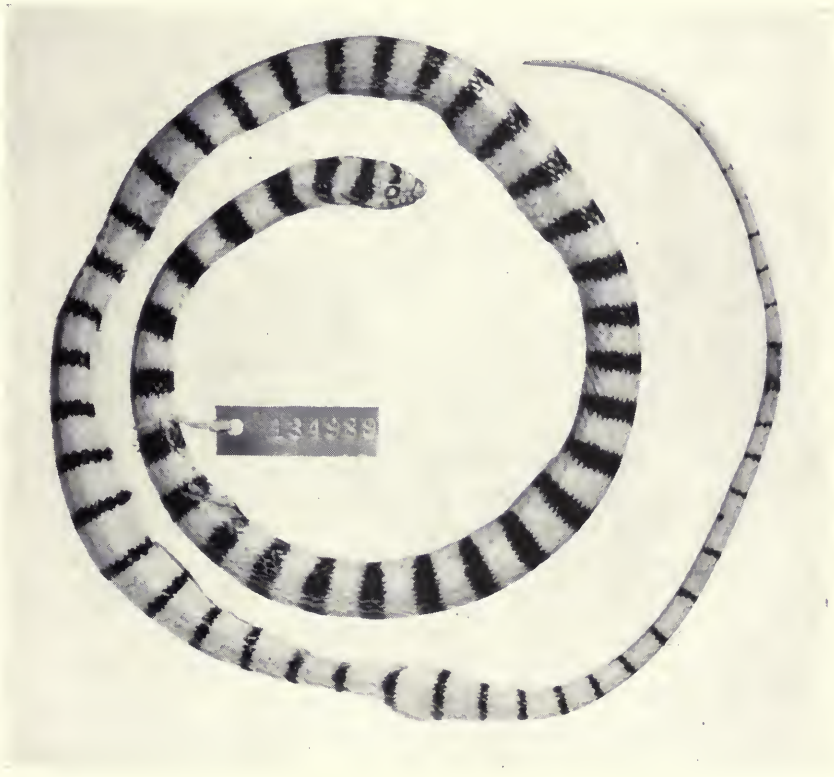


FIG. 4. Type of *Lytorhynchus sinai*, new species. USNM 134989.

as prefrontals, their suture one-half that of the prefrontals; frontal five-sided, slightly longer than its distance from the snout, the lateral sides nearly parallel; parietals nearly rectangular, their sides nearly parallel; nasal divided; loreal longer than high; two preoculars, the upper distinctly in contact with the frontal, the lower very small; two postoculars; two elongate anterior temporals followed by three in the next row on both sides; upper labials eight, fourth and fifth entering the orbit; lower labials ten, first five in

contact with anterior chinshields; chinshields elongate, posterior pair as long as anterior, widely separated.

Dorsal scales smooth, 17-17-13; ventrals 194; anal divided; caudals in two rows, 94.

Color (in alcohol).—Ground color white, with black transverse dorsal crossbars two scale lengths long, extending onto the sides of the ventrals, separated anteriorly by three scale lengths, their width decreasing posteriorly to one scale length and their separation increasing to four scale lengths; crossbars on body 50, on tail 24.

The head with two sharply defined crossbars extending to labial border; the first narrower, from the fourth and fifth labials through the eye, crossing the frontal; posterior from the seventh and eighth labials across parietals; chin white except for slight black edging of labials; venter uniformly light.

Paratype.—Chicago Natural History Museum no. 72112, a male, collected in a sandy valley at Wadi el Sheikh, St. Catherine's Monastery area, Sinai Peninsula, altitude about 5,000 feet, by Harry Hoogstraal. This specimen, a juvenile, measuring 258 mm., tail 66 mm., is almost identical in coloration with the type. Its ventrals are $184\frac{1}{2}$, caudals 93+ (only a short portion missing); the number of bars on body and tail is 51 and 30.

Comparisons.—This species is extremely well distinguished from other species of the genus. The slight elevation of the rostral edges is evidently a primitive character. The striking color pattern in juvenile and adult differentiates the species from all other snakes in the region.

***Spalerosophis cliffordi* Schlegel**

Coluber cliffordi Schlegel, 1837, *Physion. Serp.*, 2: 163—Tripoli.

Spalerosophis cliffordi Schmidt, 1939, *Field Mus. Nat. Hist., Zool. Ser.*, 24: 77.

St. Catherine's Monastery, USNM 133644 (Kuntz and Wells).
Feiran Oasis, 72086 (Hoogstraal).

The single male specimen in the Hoogstraal collection is damaged. It has dorsal scale rows 31, caudals 74, upper labials 13-13, lower labials 12-12, scales in ocular ring 11-12, temporals 4-4. Its total length is 506 mm., tail 93 mm. The female from St. Catherine's Monastery has dorsal scale rows 29, ventrals 240, caudals 74, upper labials 12-13, lower labials 12-14, oculars 12-13. Total length 1,011 mm., tail 180 mm.

Boigidae

Telescopus hoogstraali, new species. Figures 5 and 6.

Type.—Chicago Natural History Museum no. 72027. A male from Wadi el Sheikh, St. Catherine's Monastery area, Sinai Peninsula. Collected at about 5,000 feet altitude, among rocks on a hillside, May 15, 1953, by Harry Hoogstraal.

Diagnosis.—A *Telescopus* with scale rows 19, anal plate divided, ventrals in males 214–216, caudals 51–59, three labials entering the eye, loreal broadly entering the eye below the preocular. Head black above and below, body with gray ground color and obscure narrow darker crossbands, venter light with a broad darker median band, punctulate with black.

Description of type.—Head broad in temporal region; eye relatively small, less than its distance from the mouth; body stout, tail slender; rostral scarcely visible from above; internasals smaller than prefrontals; frontal subtriangular, the anterior angles truncate at their contact with the preoculars, as long as its distance from tip of snout; parietals about as long as the distance from their anterior borders to tip of snout; nasal rectangular, semi-divided; loreal elongate, entering eye below preocular; one preocular; two postoculars; temporals 2–4 on each side; upper labials 9–9, third, fourth, and fifth entering eye; lower labials 9–9; lower labials in contact with anterior chinshields 3–4; dorsal scale rows 19–19–15, smooth, slightly oblique; ventrals 216; anal divided; caudals, in two rows, 59.

Color (in alcohol).—General color pale brownish gray above, with obscure darker transverse markings; belly lighter than back, about three-fourths of its width darker, with fine black spots irregularly distributed in the darker mid-ventral longitudinal band.

Neck black; head from widened temporal region forward to snout gray with strong black vermiculation; upper and lower labials tending to have light anterior borders; first ten ventrals with black anterior edges; gulars and chinshields likewise black-edged; general appearance at a distance, black-headed.

Measurements.—Total length 993 mm., tail 153 mm.

Hemipenes.—CNHM no. 72027 has the hemipenes fully everted, extending to the ninth subcaudal. Each undivided hemipenis has a single sulcus extending to its apex.

The total length of each hemipenis is 25 mm., the distal one-half being calyculate, with numerous spines on the fringes. Proximal



FIG. 5. Type of *Telescopus hoogstraali*, new species; dorsum. CNHM 72027.

to these calyces the organ is spinous about one-fourth its total length. Proximal to the spinous area the organ is fleshy, with scattered minute spicules.

Paratype.—Chicago Natural History Museum no. 72028, with the same data as the type, and likewise a male, has dorsal scale rows 19, ventrals 214, and caudals 51. It differs from the type in having lower labials 10, four in contact with the anterior chinshields on each side. The total length is 1,021 mm., tail length 149 mm. It agrees very closely with the type in color and pattern.

Comparisons.—The new form differs sharply from all African species of *Telescopus* except *T. semiannulatus* and *T. variegatus* in having the anal plate divided, more than 200 ventrals, and mid-body



FIG. 6. Type of *Telescopus hoogstraali*, new species; venter. CNHM 72027.

scale rows 19. *T. semiannulatus* differs radically in coloration and the loreal does not enter the eye; the West African *variegatus* differs in having the loreal excluded from the eye, in not having the head black, and in having the under side with a checkered pattern. From *T. fallax*, widespread in southwest Asia, *hoogstraali* differs in having a greatly enlarged head and a much higher number of ventrals, as well as in coloration. From *nigriceps*, *hoogstraali* differs in its much higher ventral count. The color pattern of the Sinai specimens may be derived from that of the sharply defined pattern of black cross-bands and black mid-ventral area of *nigriceps* by progressive change with growth. It seems clear that *nigriceps* is the form to which the new species is most closely related.

Psammophis schokari Forskål

Coluber schokari Forskål, 1775, Descr. Anim., p. 14—Yemen.

Psammophis schokari Boulenger, 1896, Cat. Snakes Brit. Mus., 3: 157.

Wadi Feiran, USNM 131438 (Kuntz and Wells).

This juvenile specimen (a male) measures 324 mm., tail 96 mm. There are 170 ventrals and 109 caudals; upper labials 9, the fifth and sixth entering the eye; lower labials 9; preoculars one on each side, postoculars 2 on each side; temporals 2-3/2-2.

Viperidae**Atractaspis engaddensis** Haas

Atractaspis engaddensis Haas, 1950, Copeia, 1950: 52, fig. 1—Engaddi Oasis, Israel; Marx, 1952, Copeia, 1952: 278.

Feiran Oasis, 63112 (Hoogstraal).

Wadi Feiran, USNM nos. 131439, 134988 (Kuntz and Wells).

The details of no. 63112 have been given by the junior author; we now find that the specimen is a female.

The two additional specimens of this species are both females. The dorsal scale rows at mid-body are respectively 29 and 28. The ventrals are 282 and 275; caudals 34 and 36. The anal is entire. The number of the upper labials is 6, the fourth the largest and entering the orbit. The arrangement of the temporals is variable, the lower first temporal being greatly enlarged and wedged between the fourth and fifth labials. There are either two or three anterior temporals, and the next row varies from three to four. The lower labials are normally 10; in no. 131439 two small labials are cut off from the usual first labial, one on one side and one on the other; thus there is one additional false chinshield anterior to the true enlarged chinshields. These two specimens measure total length 619 mm., tail 41 mm. and total length 685 mm., tail 49 mm.

There are now additional specimens of this species in collections in Tel Aviv, from the Negev.

Echis coloratus Günther

Echis colorata Günther, 1878, Proc. Zool. Soc. London, 1878: 978—Jebel Sharr, Midian.

Feiran Oasis, 63113, 72032 (Hoogstraal).

El Raba, 72031 (Hoogstraal).

In the three male specimens the dorsal scale rows are uniformly 31, ventrals 195, 202, 195, caudals 50, 52, 49, and the total length 335 mm., 721 mm., and 594 mm.

Cerastes cerastes Linnaeus

Coluber cerastes Linnaeus, 1758, Syst. Nat., ed. 10, 1: 217—"habitat in Oriente."

Cerastes cerastes Andersson, 1899, Bih. Svensk. Vet. Akad. Handl., 24: 29.

Wadi Feiran, USNM 131440 (Kuntz and Wells).

The specimen, a male, measures 407 mm., tail incomplete. The scale rows at mid-body are 35, ventrals 144; upper labials 11-13, lower labials 14-13; scales in ocular ring 14-15; no "horns."

AMPHIBIANS AND REPTILES RECORDED FROM SINAI

<i>Bufo viridis viridis</i> Laurenti	<i>Eremias guttulata guttulata</i> Lichtenstein
<i>Rana mascareniensis mascareniensis</i> Duméril and Bibron	<i>Eremias olivieri schmidtii</i> Haas
<i>Testudo leithi</i> Günther	<i>Eremias rubropunctata</i> Lichtenstein
<i>Gymnodactylus scaber</i> Heyden	<i>Ophisops elegans elegans</i> Ménétriés
<i>Hemidactylus turcicus turcicus</i> Linnaeus	<i>Ablepharus kitaibeli</i> Bibron and Bory
<i>Ptyodactylus hasselquisti hasselquisti</i> Donndorff	<i>Chalcides ocellatus ocellatus</i> Forskål
<i>Stenodactylus sthenodactylus sthenodactylus</i> Lichtenstein	<i>Chalcides sepsoides</i> Audouin
<i>Stenodactylus petri</i> Anderson	<i>Eumeces schneideri schneideri</i> Daudin
<i>Tropicolotes nattereri</i> Steindachner	<i>Scincus scincus scincus</i> Linnaeus
<i>Tropicolotes steudneri</i> Peters	<i>Chamaeleo chamaeleon chamaeleon</i> Linnaeus
<i>Tarentola mauritanica mauritanica</i> Linnaeus	<i>Typhlops vermicularis</i> Merrem
<i>Tarentola annularis annularis</i> Geoffroy	<i>Coluber ravergieri</i> Ménétriés
<i>Agama mutabilis</i> Merrem	<i>Coluber rhodorachis</i> Jan
<i>Agama pallida</i> Reuss	<i>Coluber rogersi</i> Anderson
<i>Agama savignyi</i> Duméril and Bibron	<i>Eirenis coronella coronella</i> Schlegel
<i>Agama sinaita</i> Heyden	<i>Lytorhynchus diadema</i> Duméril and Bibron
<i>Agama stellio brachydactyla</i> Haas	<i>Lytorhynchus sinai</i> , new sp.
<i>Uromastix aegyptius</i> Forskål	<i>Natrix tessellata</i> Laurenti
<i>Uromastix acanthinurus</i> Bell	<i>Spalerosophis cliffordi</i> Schlegel
<i>Uromastix ornatus</i> Heyden	<i>Psammophis schokari</i> Forskål
<i>Varanus griseus</i> Daudin	<i>Telescopus dhara</i> Forskål
<i>Acanthodactylus boskianus asper</i> Audouin	<i>Telescopus hoogstraali</i> , new sp.
<i>Acanthodactylus scutellatus scutellatus</i> Audouin	<i>Atractaspis engaddensis</i> Haas
	<i>Cerastes cerastes</i> Linnaeus
	<i>Cerastes vipera</i> Linnaeus
	<i>Echis coloratus</i> Günther
	<i>Pseudocerastes fieldi</i> Schmidt

ARTIFICIAL KEY TO THE GENERA OF AMPHIBIANS AND REPTILES KNOWN FROM SINAI

1. Body covered with bony shell or with scales (reptiles) 3
Body fleshy, not covered with shell or scales (frogs) 2
2. Skin warty; parotoid glands present *Bufo*
Skin smooth; parotoid glands absent *Rana*
3. Body covered by a shell (turtles) *Testudo*
Body covered by scales 4
4. Limbs absent (snakes) 5
Limbs present (lizards) 16
5. Ventral scales distinctly larger than dorsal scales 6
Ventral scales same size as dorsal scales *Typhlops*
6. Subcaudals single 7
Subcaudals paired 8
7. Head covered with large shields *Atractaspis*
Head covered with small scales *Echis*
8. Upper labials do not enter eye; eye completely surrounded by oculars . . 9
One or more upper labials enter eye 11
9. Head covered with large shields *Spalerosophis*
Head covered with small scales 10
10. An elevated projection above eye composed of several scales . *Pseudocerastes*
No projection above eye, or a spine-like single scale above eye . . *Cerastes*
11. Dorsal scales keeled *Natrix*
Dorsal scales smooth 12
12. Lateral edges of rostral projecting above the level of the adjacent shields.
Lytorhynchus
Lateral edges of rostral not projecting 13
13. Scales in 15 rows; usually one anterior temporal scale *Eirenis*
Scale rows more than 15; usually two or more anterior temporal scales . . 14
14. Scales in 17 rows *Psammophis*
Scale rows more than 17 15
15. Posterior chinshields two-thirds or less than two-thirds of length of anterior pair; rear fangs present *Telescopus (Tarbophis)*
Posterior chinshields equal to or greater than length of anterior pair; rear fangs absent *Coluber*
16. Tail prehensile; digits in opposable bundles *Chamaeleo*
Tail not prehensile; digits not in bundles 17
17. Head covered with large shields 18
Head covered with small scales 24
18. Eyelids absent 19
Eyelids present 20
19. Dorsal scales smooth *Ablepharus*
Dorsal scales keeled *Ophisops*
20. Dorsal scales similar to ventral scales, smooth, shiny 21
Dorsal scales different from ventral plates 23
21. Fingers and toes with broad fringes *Scincus*
Fingers and toes not fringed 22

22. Nostril in contact with rostral shield *Chalcides*
Nostril not in contact with rostral shield *Eumeces*
23. Digits, especially fourth toe, with well-developed lateral fringe; subocular
does not reach mouth *Acanthodactylus*
Digits without lateral fringe; subocular reaches mouth *Eremias*
24. Eyelids absent 25
Eyelids present 30
25. Fingers and toes cylindrical, not expanded distally 26
Fingers and toes expanded, with adhesive lamellae beneath 28
26. Fingers and toes angularly bent *Gymnodactylus*
Fingers and toes straight 27
27. Dorsal scales imbricate *Tropiocolotes*
Dorsal scales granular *Stenodactylus*
28. Digits proximally slender, expanded at tips *Ptyodactylus*
Digits proximally expanded 29
29. Digits with raised, curved, clawed, slender distal phalanges; lamellae of
expanded portion divided *Hemidactylus*
No clawed, distal, raised phalanges; claws only on third and fourth digits;
lamellae single *Tarentola*
30. Nostril a large elongate slit, distinctly closer to eye than end of snout.
Varanus
Nostril small, distinctly closer to end of snout than eye 31
31. Femoral pores present in males; incisor teeth consolidated into one or two
large cutting teeth, separated by a gap from posterior teeth . *Uromastix*
Femoral pores absent; teeth normal, no gap between incisors and posterior
teeth *Agama*

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